TITLE OF INVENTION: EASY-TO-CLEAN STRAW

DESCRIPTION

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a straw, in particular to a straw having an inner structure to facilitate the cleaning of the inner surface of the straw.

Description of the Related Art

[0002] In the context of increasingly stringent environmental regulations, many countries have begun to restrict or ban disposable plastic straws.

[0003] In order to comply with laws and regulations, environmentally friendly materials, such as paper or corn flour, have been used to make disposable straws. However, due to the large consumption of straws, discarded straws still produce a lot of garbage.

[0004] To solve the problem mentioned above, reusable straws have been proposed. However, the cleaning of the inner surface of the reusable straws poses another problem. To cope with the cleaning issue, a Taiwan patent I674868 has proposed a detachable straw, which is mainly composed of two magnetic half-tube bodies and a clasp to form a straw. However, the detachable straw of this patent has disadvantages of high cost and inherent assembly dislocation tendency.

[0005] To solve the aforementioned problems, a novel easy-to-clean straw

structure is needed in the art.

SUMMARY OF THE INVENTION

[0006] The main objective of the present invention is to disclose a straw having an uneven inner tube wall distributed with a plurality of protrusions, to enable a user to press and roll the outer tube wall to rub the uneven inner tube wall with the plurality of protrusions, thereby effectively removing remnants left on the uneven inner tube wall.

[0007] Another objective of the present invention is to disclose a straw which can be folded to be stored in a box.

[0008] To attain the foregoing objectives, an easy-to-clean straw is proposed, which includes:

[0009] an outer tube wall;

[0010] an uneven inner tube wall; and

[0011] a channel enclosed by the uneven inner tube wall;

[0012] where the uneven inner tube wall has a plurality of protrusions thereon to enable a user to press and roll the outer tube wall to rub the uneven inner tube wall with the plurality of protrusions, thereby effectively removing remnants left on the uneven inner tube wall.

[0013] For possible embodiments, the straw can be made of silicone or TPE (thermoplastic elastomer).

[0014] In one embodiment, the protrusions are triangular.

[0015] In one embodiment, the protrusions are square.

[0016] In one embodiment, the protrusions are semicircular.

[0017] In one embodiment, the protrusions are polygonal.

[0018] For possible embodiments, the outer tube wall can have a cross sectional outline of a circular shape or a textured shape.

[0019] To make it easier for our examiner to understand the objective of the invention, its structure, innovative features, and performance, we use preferred embodiments together with the accompanying drawings for the detailed description of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020]

[FIG. 1] illustrates a schematic diagram of an embodiment of the easy-to-clean straw of the present invention.

[FIG. 2] illustrates another schematic view of the easy-to-clean straw of [FIG. 1].

[FIG. 3] illustrates a cross-sectional view of the easy-to-clean straw of [FIG. 1].

[FIG. 4] illustrates a cross-sectional view of another embodiment of the easy-to-clean straw of the present invention.

[FIG. 5] illustrates a cross-sectional view of still another embodiment of the easy-to-clean straw of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] Please refer to [FIG. 1] - [FIG. 3], in which, [FIG. 1] illustrates a schematic diagram of an embodiment of the easy-to-clean straw of the present invention; [FIG. 2] illustrates another schematic view of the easy-to-clean straw of

[FIG. 1]; and [FIG. 3] illustrates a cross-sectional view of the easy-to-clean straw of [FIG. 1].

[0022] As shown in [FIG. 1], the easy-to-clean straw has an outer tube wall 100, an uneven inner tube wall 110, and a channel 120. In addition, preferably, the straw of the present invention can be made of silicone or TPE (thermoplastic elastomer) to possess flexibility to be conveniently stored in a small box.

[0023] The outer tube wall 100 can be a flat surface having a circular cross sectional outline, or a textured surface having a non-circular cross sectional outline, for example, a cross sectional outline of a heart shape, a flower shape, or other geometric shapes.

[0024] The uneven inner tube wall 110 has a plurality of protrusions 111 thereon. In this embodiment, the protrusions 111 are triangular.

[0025] The channel 120 is enclosed by the uneven tube wall 111 for the passage of fluid.

[0026] The principle of the present invention lies in: a plurality of protrusions 111 are arranged around the uneven inner tube wall 110, so that a user can press and roll the circular outer tube wall 100 to make the plurality of protrusions 111 rub the surface of the uneven inner tube wall 110, thereby effectively removing the remnants left on the uneven inner tube wall 110.

[0027] Based on the above description, the present invention further proposes other embodiments of the protrusion 111 on the uneven inner tube wall 110. Please refer to [FIG. 4], which illustrates a cross-sectional view of another embodiment of the easy-to-clean straw of the present invention, in which the protrusions 111 are square; and refer to [FIG. 5], which illustrates a cross-sectional view of still another embodiment of the easy-to-clean straw of the present invention, where the protrusions 111 are semicircular. Apart from the shapes mentioned above, the protrusions 111 of

the present invention can also be polygonal.

[0028] Thanks to the proposals disclosed above, the present invention has the following advantages:

[0029] 1. The straw of the present invention has an uneven inner tube wall distributed with a plurality of protrusions to enable a user to press and roll the outer tube wall to rub the uneven inner tube wall with the plurality of protrusions, thereby effectively removing remnants left on the uneven inner tube wall.

[0030] 2. The straw of the present invention can be folded to be stored in a box.

[0031] While the invention has been described by way of example and in terms of preferred embodiments, it is to be understood that the invention is not limited thereto. On the contrary, it is intended to cover various modifications and similar arrangements and procedures, and the scope of the appended claims therefore should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements and procedures.

[0032] In summation of the above description, the present invention herein enhances the performance over the conventional structure and further complies with the patent application requirements and is submitted to the Patent and Trademark Office for review and granting of the commensurate patent rights.

CLAIMS

[CLAIM 1]

An easy-to-clean straw comprising:

an outer tube wall;

an uneven inner tube wall; and

a channel enclosed by the uneven inner tube wall;

wherein the uneven inner tube wall has a plurality of protrusions thereon to enable a user to press and roll the outer tube wall to rub the uneven inner tube wall with the plurality of protrusions, thereby effectively removing remnants left on the uneven inner tube wall.

[CLAIM 2]

The easy-to-clean straw as disclosed in claim 1, wherein the straw is made of silicone or TPE.

[CLAIM 3]

The easy-to-clean straw as disclosed in claim 1, wherein the protrusions are triangular.

[CLAIM 4]

The easy-to-clean straw as disclosed in claim 1, wherein the protrusions are square.

[CLAIM 5]

The easy-to-clean straw as disclosed in claim 1, wherein the protrusions are semicircular.

[CLAIM 6]

The easy-to-clean straw as disclosed in claim 1, wherein the protrusions are polygonal.

[CLAIM 7]

The easy-to-clean straw as disclosed in claim 1, wherein the outer tube wall has a cross sectional outline of a circular shape or a textured shape.